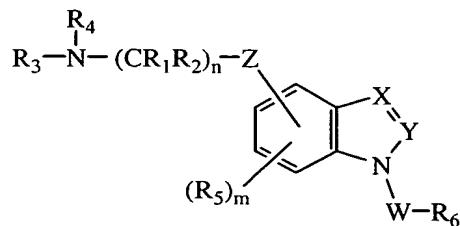


WHAT IS CLAIMED IS:

1. A compound of formula I



(I)

5

wherein

W is SO₂, CO, CONH, CSNH or CH₂;

X is CR₁ or N;

Y is CR₂ or N with the proviso that when X is N, then
10 Y must be CR₂;

Z is O, SO_p or NR_q;

R₁ and R₂ are each independently H or C₁-C₆alkyl;

n is an integer of 2, 3 or 4;

R₃ and R₄ are each independently H, CNR₁₀NR₁₁R₁₂, or a
15 C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted, or R₃ and R₄ may be taken together with the atom to which they are attached to form an optionally substituted 3- to 6-membered ring optionally containing an additional heteroatom selected from O, N or S;

20 R₅ is H, halogen, CN, OR₁₃, CO₂R₁₄, CONR₁₅R₁₆, CNR₁₇NR₁₈R₁₉, SO₂NR₂₀R₂₁, SO_qR₂₂ or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, cycloheteroalkyl, phenyl or heteroaryl group each optionally substituted;

25 m is an integer of 1, 2 or 3;

p and q are each independently 0 or an integer of 1 or 2;

R₆ is an optionally substituted C₁-C₆alkyl, aryl or heteroaryl group;

R₇ and R₈ are each independently H, halogen or a C₁-C₆alkyl, aryl, heteroaryl or C₁-C₆alkoxy group each 5 optionally substituted;

R₉ is H or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

R₁₀, R₁₁, R₁₂, R₁₅, R₁₆, R₁₇, R₁₈ and R₁₉ are each 10 independently H or C₁-C₄alkyl;

R₁₃ is H, COR₂₃ or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, aryl or heteroaryl group each optionally substituted;

R₁₄ is H or a C₁-C₆alkyl, aryl or heteroaryl group each 15 optionally substituted;

R₂₀ and R₂₁ are each independently H or a C₁-C₆alkyl, aryl or heteroaryl group each optionally substituted; and

R₂₂ and R₂₃ are each independently an optionally 20 substituted C₁-C₆alkyl, aryl or heteroaryl group; or a pharmaceutically acceptable salt thereof.

2. The compound according to claim 1 wherein W is SO₂.

25

3. The compound according to claim 1 wherein Z is O.

4. The compound according to claim 1 wherein n is 2.

30

5. The compound according to claim 1 wherein R₆ is an aryl or heteroaryl group each optionally substituted.

6. The compound according to claim 1 wherein X is CR, and R₅ and R₇ are H.

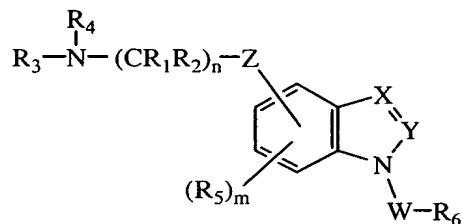
7. The compound according to claim 2 wherein R₁ and R₂ are H; Z is O; and n is 2.

8. The compound according to claim 6 wherein W is SO₂; 5 Z is O; and R₃ and R₄ are taken together with the atom to which they are attached to form a 5- or 6-membered ring optionally containing one oxygen atom.

9. The compound according to claim 6 selected from the 10 group consisting of:

2-{{1-(phenylsulfonyl)-1H-indol-4-yl}oxy}ethylamine;
4-(2-morpholin-4-ylethoxy)-1-(phenylsulfonyl)-1H-indole;
1-(phenylsulfonyl)-4-(2-piperidin-1-ylethoxy)-1H-indole;
N-(2-{{1-(phenylsulfonyl)-1H-indol-4-
15 yl}oxy}ethyl)tetrahydro-2H-pyran-4-amine;
N,N-bis(3-methoxybenzyl)-2-{{1-(phenylsulfonyl)-1H-indol-
4-yl}oxy}ethanamine;
N-(3-methoxybenzyl)-2-{{1-(phenylsulfonyl)-1H-indol-4-
yl}oxy}ethanamine;
20 N,N-dimethyl-2-{{1-(phenylsulfonyl)-1H-indol-4-
yl}oxy}ethanamine;
1-(phenylsulfonyl)-4-[2-(1-piperidinyl)ethoxy]-1H-
indazole;
2-{{1-(phenylsulfonyl)-1H-indazol-4-yl}oxy}ethylamine;
25 N-(2-{{1-(phenylsulfonyl)-1H-indazol-4-
yl}oxy}ethyl)tetrahydro-2H-pyran-4-amine;
N-(2-{{1-(phenylsulfonyl)-1H-indazol-4-
yl}oxy}ethyl)tetrahydro-2H-thiopyran-4-amine;
1-[(4-nitrophenyl)sulfonyl]-4-[2-(1-piperidinyl)ethoxy]-
30 1H-indazole;
1-[(4-fluorophenyl)sulfonyl]-4-[2-(1-piperidinyl)ethoxy]-
1H-indazole;
4-({4-[2-(1-piperidinyl)ethoxy]-1H-indazol-1-
35 yl}sulfonyl)aniline; and
a pharmaceutically acceptable salt thereof.

10. A method for the treatment of a disorder of the central nervous system related to or affected by the 5-HT₆ receptor in a patient in need thereof which comprises providing to said patient a therapeutically effective amount of a compound of formula I.



(I)

wherein

- W is SO₂, CO, CONH, CSNH or CH₂;
- 10 X is CR₃ or N;
- Y is CR₃ or N with the proviso that when X is N, then Y must be CR₃;
- Z is O, SO₂ or NR₃;
- R₁ and R₂ are each independently H or C₁-C₆alkyl;
- 15 n is an integer of 2, 3 or 4;
- R₃ and R₄ are each independently H, CNR₁₀NR₁₁R₁₂, or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted, or R₃ and R₄ may be taken together with the atom to which they are attached to form an optionally substituted 3- to 6-membered ring optionally containing an additional heteroatom selected from O, N or S;
- 20 R₅ is H, halogen, CN, OR₁₃, CO₂R₁₄, CONR₁₅R₁₆, CNR₁₇NR₁₈R₁₉, SO₂NR₂₀R₂₁, SO₂R₂₂ or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, cycloheteroalkyl, phenyl or heteroaryl group each optionally substituted;
- 25 m is an integer of 1, 2 or 3;

p and q are each independently 0 or an integer of 1 or 2;

R_6 is an optionally substituted C_1 - C_6 alkyl, aryl or heteroaryl group;

5 R_7 and R_8 are each independently H, halogen or a C_1 - C_6 alkyl, aryl, heteroaryl or C_1 - C_6 alkoxy group each optionally substituted;

R_9 is H or a C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, C_3 - C_6 cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

10 R_{10} , R_{11} , R_{12} , R_{15} , R_{16} , R_{17} , R_{18} and R_{19} are each independently H or C_1 - C_4 alkyl;

R_{13} is H, COR₂₃ or a C_1 - C_6 alkyl, C_2 - C_6 alkenyl, C_2 - C_6 alkynyl, aryl or heteroaryl group each optionally substituted;

15 R_{14} is H or a C_1 - C_6 alkyl, aryl or heteroaryl group each optionally substituted;

R_{20} and R_{21} are each independently H or a C_1 - C_6 alkyl, aryl or heteroaryl group each optionally substituted; and

20 R_{22} and R_{23} are each independently an optionally substituted C_1 - C_6 alkyl, aryl or heteroaryl group; or a pharmaceutically acceptable salt thereof.

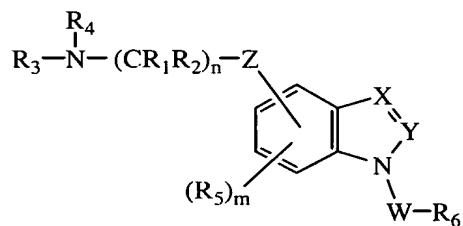
25 11. The method according to claim 10 wherein said disorder is a motor disorder, anxiety disorder or cognitive disorder.

30 12. The method according to claim 10 wherein said disorder is schizophrenia or depression.

13. The method according to claim 11 wherein said cognitive disorder is attention deficit disorder.

14. The method according to claim 11 wherein said cognitive disorder is Alzheimer's disease or Parkinson's disease.

5 15. A pharmaceutical composition which comprises a pharmaceutically acceptable carrier and an effective amount of a compound of formula I.



(I)

10 wherein

W is SO₂, CO, CONH, CSNH or CH₂;

X is CR₃ or N;

Y is CR₃ or N with the proviso that when X is N, then Y must be CR₃;

15 Z is O, SO₂ or NR₃;

R₁ and R₂ are each independently H or C₁-C₆alkyl;

n is an integer of 2, 3 or 4;

R₃ and R₄ are each independently H, CNR₁₀NR₁₁R₁₂, or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-

20 C₆cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted, or R₃ and R₄ may be taken together with the atom to which they are attached to form an optionally substituted 3- to 6-membered ring optionally containing an additional heteroatom selected from O, N or S;

25 R₅ is H, halogen, CN, OR₁₃, CO₂R₁₄, CONR₁₅R₁₆, CNR₁₇NR₁₈R₁₉, SO₂NR₂₀R₂₁, SO₂R₂₂ or a C₁-C₆alkyl, C₂-C₆alkenyl,

C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, cycloheteroalkyl, phenyl or heteroaryl group each optionally substituted;

m is an integer of 1, 2 or 3;

5 p and q are each independently 0 or an integer of 1 or 2;

R_6 is an optionally substituted C_1-C_6 alkyl, aryl or heteroaryl group;

10 R_7 and R_8 are each independently H, halogen or a C_1-C_6 alkyl, aryl, heteroaryl or C_1-C_6 alkoxy group each optionally substituted;

R_9 is H or a C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, C_3-C_6 cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

15 R_{10} , R_{11} , R_{12} , R_{15} , R_{16} , R_{17} , R_{18} and R_{19} are each independently H or C_1-C_6 alkyl;

R_{13} is H, COR_{23} or a C_1-C_6 alkyl, C_2-C_6 alkenyl, C_2-C_6 alkynyl, aryl or heteroaryl group each optionally substituted;

20 R_{14} is H or a C_1-C_6 alkyl, aryl or heteroaryl group each optionally substituted;

R_{20} and R_{21} are each independently H or a C_1-C_6 alkyl, aryl or heteroaryl group each optionally substituted; and

25 R_{22} and R_{23} are each independently an optionally substituted C_1-C_6 alkyl, aryl or heteroaryl group; or a pharmaceutically acceptable salt thereof.

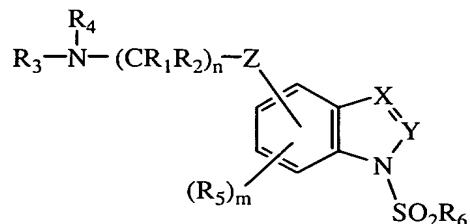
16. The composition according to claim 15 wherein W is
30 SO_2 ; Z is O; and n is 2.

17. The composition according to claim 16 wherein R_6 is an aryl or heteroaryl group each optionally substituted.

18. The composition according to claim 17 wherein X is CR, and R₁, R₂, R₅, and R₆ are H.

19. The composition according to claim 18 having a
5 formula I compound selected from the group consisting of:
2-{[1-(phenylsulfonyl)-1H-indol-4-yl]oxy}ethylamine;
4-(2-morpholin-4-ylethoxy)-1-(phenylsulfonyl)-1H-indole;
1-(phenylsulfonyl)-4-(2-piperidin-1-ylethoxy)-1H-indole;
N-(2-{[1-(phenylsulfonyl)-1H-indol-4-
10 yl]oxy}ethyl)tetrahydro-2H-pyran-4-amine;
N,N-bis(3-methoxybenzyl)-2-{[1-(phenylsulfonyl)-1H-indol-4-
yl]oxy}ethanamine;
N-(3-methoxybenzyl)-2-{[1-(phenylsulfonyl)-1H-indol-4-
yl]oxy}ethanamine;
15 N,N-dimethyl-2-{[1-(phenylsulfonyl)-1H-indol-4-
yl]oxy}ethanamine;
1-(phenylsulfonyl)-4-[2-(1-piperidinyl)ethoxy]-1H-
indazole;
2-{[1-(phenylsulfonyl)-1H-indazole-4-yl]oxy}ethylamine;
20 N-(2-{[1-(phenylsulfonyl)-1H-indazole-4-
yl]oxy}ethyl)tetrahydro-2H-pyran-4-amine;
N-(2-{[1-(phenylsulfonyl)-1H-indazol-4-
yl]oxy}ethyl)tetrahydro-2H-thiopyran-4-amine;
1-[(4-nitrophenyl)sulfonyl]-4-[2-(1-piperidinyl)ethoxy]-
25 1H-indazole;
1-[(4-fluorophenyl)sulfonyl]-4-[2-(1-piperidinyl)ethoxy]-
1H-indazole;
4-({4-[2-(1-piperidinyl)ethoxy]-1H-indazole-1-
yl}sulfonyl)aniline; or
30 a pharmaceutically acceptable salt thereof.

20. A method for the preparation of a compound of formula Ia



(Ia)

5

wherein

- X is CR, or N;
- Y is CR₈ or N with the proviso that when X is N, then Y must be CR₈;
- Z is O, SO_p or NR₉;
- R₁ and R₂ are each independently H or C₁-C₆alkyl;
- n is an integer of 2, 3 or 4;
- R₃ and R₄ are each independently H, CNR₁₀NR₁₁R₁₂, or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted, or R₃ and R₄ may be taken together with the atom to which they are attached to form an optionally substituted 3- to 6-membered ring optionally containing an additional heteroatom selected from O, N or S;
- R₅ is H, halogen, CN, OR₁₃, CO₂R₁₄, CONR₁₅R₁₆, CNR₁₇NR₁₈R₁₉, SO₂NR₂₀R₂₁, SO_qR₂₂ or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, cycloheteroalkyl, phenyl or heteroaryl group each optionally substituted;
- m is an integer of 1, 2 or 3;
- p and q are each independently 0 or an integer of 1 or 2;

R₆ is an optionally substituted C₁-C₆alkyl, aryl or heteroaryl group;

R₇ and R₈ are each independently H, halogen or a C₁-C₆alkyl, aryl, heteroaryl or C₁-C₆alkoxy group each 5 optionally substituted;

R₉ is H or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, C₃-C₆cycloalkyl, cycloheteroalkyl, aryl or heteroaryl group each optionally substituted;

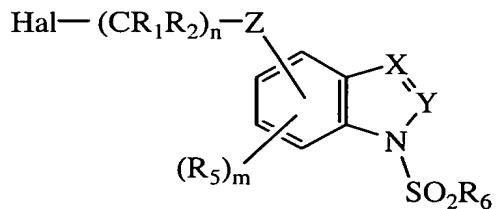
R₁₀, R₁₁, R₁₂, R₁₅, R₁₆, R₁₇, R₁₈ and R₁₉ are each 10 independently H or C₁-C₄alkyl;

R₁₃ is H, COR₂₃ or a C₁-C₆alkyl, C₂-C₆alkenyl, C₂-C₆alkynyl, aryl or heteroaryl group each optionally substituted;

R₁₄ is H or a C₁-C₆alkyl, aryl or heteroaryl group each 15 optionally substituted;

R₂₀ and R₂₁ are each independently H or a C₁-C₆alkyl, aryl or heteroaryl group each optionally substituted; and

R₂₂ and R₂₃ are each independently an optionally 20 substituted C₁-C₆alkyl, aryl or heteroaryl group which method comprises reacting a compound of formula V'



(V')

wherein Hal is Cl, Br or I and X, Y, Z, n, m, R₁, R₂, R₅ and R₆ are as defined hereinabove with an amine, HNR₃R₄, 25 wherein R₃ and R₄ are defined hereinabove optionally in the presence of a solvent to give the desired compound of formula Ia.